Using a Situational Judgment Test to Assess Multidimensional Complex Decision Making

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The Importance of Decision Making

- “Why do leaders fail? They make poor choices that lead to bad decisions. And in some cases they compound bad decision upon bad decision. You cannot separate leadership from decisioning, for like it or not, they are inexorably linked. Put simply, the outcome of a leader’s choices and decisions can, and usually will, make or break them. The fact of the matter is that senior executives who rise to the C-suite do so largely based upon their ability to consistently make sound decisions. What most fail to realize is while it may take years of solid decision making to reach the boardroom, it often times only takes one bad decision to fall from the ivory tower. As much as you may wish it wasn’t so, when it comes to being a leader you’re really only as good as your last decision.”

Mike Myatt
Forbes, 3-28-12

- Decisions are usually multi-faceted that involve many interacting variables.
- Decisions involve longer-term strategic decisions involving the direction of the organization.
- Decisions include shorter-term administrative and operational decisions that seek to increase the efficiency of the organization’s function and optimize procedures.
- Decisions constrained by limited knowledge and time.
- Decisions may involve some degree of moral judgment.

3 broad groups of factors*

1. Problem Characteristics (e.g. how information is framed or ordered)

2. Situation Characteristics (e.g. time pressure, cognitive load)

3. Person Characteristics

a) Abilities

b) Personal qualities

c) Moral inclinations

*Hunt, R., Krzystofiak, F., Meindl, J., & Yousry, A. (1989). Cognitive style and decision making. *Organizational Behavior and Human Decision Processes, 44*, 436–453.

1. Abilities that affect decision making
   - **General knowledge and numeracy** (Peters & Levin, 2008)
   - **Cognitive reflection** (Frederick, 2005)
   - **Susceptibility to certain cognitive bias and heuristics** (Tversky & Kahneman, 1974; 1981)
   - **Working memory capacity** (Corbin et al., 2010)

2. Personal qualities that affect decision making

- **Tolerance for ambiguity** Weisbrod (2009)

- **Need for cognition** (Carnevale, Inbar & Lerner, 2011)

3. Moral inclinations that affect decision making

- **Altruism/Egoism**

- **Utilitarianism/Deontology**

Limitations of current DM assessment tools

Examples of assessment tools that (indirectly) assess DM:

- Cognitive ability tests (e.g. Analytical ability)
- Personality inventories (e.g. Impulsivity)
- Decision making style questionnaires (e.g. “I make decisions more on facts than my gut instincts.”)

These tend to be unidimensional and may not represent the complex nature of workplace decision making.

These do not directly tap decisions that are encountered in the workplace.

Current DM tools usually do not assess moral judgment.

The SJT as a DM assessment tool

Situational Judgment Tests (SJT) are:

- Based on actual work scenarios that are complex and multidimensional.
- Response options are realistic to the workplace.
- High face validity and high fidelity assessment of the decision making environment encountered by managers and executives.
- Able to assess a variety of job-relevant constructs/competencies.
- Potentially able to embed moral judgment aspects in scenarios in a realistically subtle ways.

Previous research showed that SJTs can tap:

- Employee integrity (Becker, 2005)
- Applied social skills and basic personality tendencies (Christian, Edwards & Bradley, 2010)
- Tacit knowledge (McDaniel, Morgeson, Finnegan, Campion & Braverman, 2001)
- Practical intelligence (McDaniel & Whetzel, 2005)
- Interpersonal skills (Lievens & Sackett, 2012)
- Common sense (Salter & Highhouse, 2009)
- Aviation pilot judgment (Hunter, 2003)

Aim: To evaluate the extent to which the SJT is able to tap multiple dimensions that are relevant to decision-making.

Strategy:

1. Identify relevant dimensions of decision-making from the literature (e.g. abilities and personal characteristics relevant to DM).
2. Determine how much these relate to the multidimensional SJT.

Participants

- N=94 (41 males, 53 females)
- Aged between 18 to 46 (M=20.53, SD=4.805)

Measures used:

1. Situational Judgment Test (SJT)

- 15 work scenarios adapted from http://www.assessmentday.co.uk http://www.jobtestprep.co.uk http://www.epsosjt.com
- 3 response options per scenario.
- To select the most effective response.
- Scenarios and response options rated by a sample of 4 managers on realism and importance.

2. **Adult Decision Making Competencies (ADMC)**

- 6 decision making competencies assessed
  i. Resistance to Framing (i.e. susceptibility to being influenced by irrelevant variations in problem descriptions; e.g. “90% chance of surviving” vs. “10% risk of dying”)

  ii. Recognizing Social Norms (i.e. assesses understanding of peer social norms)

  iii. Under-Overconfidence (i.e. assesses how well participants recognize the extent of their own knowledge)

2. **ADMC*** (con't)

iv. Applying Decision Rules (i.e. ability to apply decision rules such as elimination by aspects, satisficing, lexicographic, equal weights rules)

v. Resistance to Sunk Costs (i.e. the ability to ignore prior investments when making decisions)

vi. Consistency in Risk Perception (i.e. the ability to follow probability rules; e.g. probability of dying in a car crash in the next 5 years should LESS than the probability of dying in the next 5 years because the former is a subset of the latter.)

*Bruine de Bruin, W., Parker, A. M., & Fischhoff, B. (2007). Individual differences in adult decision-making competence. *Journal of personality and social psychology*, *92*(5), 938–56. doi:10.1037/0022-3514.92.5.938.

3. **Cognitive Reflectivity Test (CRT)***
   - 3 questions
   - Impulsive answer is incorrect
   - Correct answer requires inhibiting the impulsive answer and reflecting on question

*Frederick, S. (2005). Cognitive Reflection and Decision Making. *Journal of Economic Perspectives, 19*(4), pp. 25-42.

4. **Tolerance for Ambiguity (TFA)***
   - 22 items
   - Extent of agreement/disagreement to the items on a 7-point Likert scale
   - E.g. “I generally prefer novelty over familiarity”.

*McLain, D. L. (1993). The MSTAT-I: A new measure of an individual's tolerance for ambiguity. *Educational and Psychological Measurement, 53*(1), 183-189

5. Need for Cognition (NFC)*

- 18 items
- Extent of agreement/disagreement to the items on a 7-point Likert scale
- E.g. “I would prefer complex to simple problems”.

*Cacioppo, J. T., Petty, R. E., & Kao, C. F. (1984). The efficient assessment of need for cognition. *Journal of Personality Assessment, 48,* 306–307.

6. Moral Judgment- Altruism/Egoism (MJ-AE)

- 10 items from the Everyday Moral Decision Making inventory*
- For each item, choose between the Altruistic or Egoistic option.

  E.g.#1: "You have slightly scratched another car while parking. It is dark and nobody has seen you. Would you leave a message for the owner of the car?"

  a) Yes

  b) No

*Starcke, K., Polzer, C., Wolf, O. T., & Brand, M. (2011). Does stress alter everyday moral decision-making? *Psychoneuroendocrinology*, *36*(2), 210–9. doi:10.1016/j.psyneuen.2010.07.010

7. **Moral Judgment- Utilitarianism/Deontology (MJ-UD)**

- 5 items selected from moral dilemmas by Greene et al.*
- For each item, choose between the Utilitarian or Deontological option.

E.g. "You come to a railroad and notice a runaway trolley quickly approaching a fork in the tracks. On the tracks extending to the left is a group of five railroad workmen. On the tracks extending to the right is a single railway workman. If you do nothing, the trolley will proceed to the left, causing the death of the five workmen. The only way to avoid the deaths of these workmen is to hit a switch on a dashboard that will cause the trolley to proceed to the right, causing the death of the single workman. Would you hit the switch in order to avoid the deaths of the five workmen?"

a) Yes.
b) No.

*Greene, J.D., Morelli, S.A., Lowenberg, K., Nystrom, L.E., & Cohen, J.D. (2008). Cognitive Load Selectively Interferes with Utilitarian Moral Judgment. *Cognition*, 107(3), 1144-1154.

1. Reliability analyses conducted on the 15 SJT items to determine how similar the items were.

- Coefficient Alpha = 0.551, indicating only moderate relatedness among items.

✉Need to examine dimensionality of individual items.

2. Correlational analyses conducted on each item & dimension.

- 12 out of the 15 items were significantly correlated with at least 1 dimension relevant to decision making.
- 6 items were significantly correlated with 2 or more dimensions.

Abilities relevant to decision making

	Resistance to Framing	Consistency in Risk Perception	Applying Decision Rules
SJT-1	n.s.	0.298**	0.252*
SJT-2	n.s.	0.205*	0.256*
SJT-4	n.s.	0.243*	n.s.
SJT-6	n.s.	n.s.	0.223*
SJT-7	0.232*	n.s.	n.s.
SJT-15	n.s.	n.s.	0.289**

*Significant at alpha level of 0.05.

**Significant at alpha level of 0.01.

Personal qualities relevant to decision making

	Tolerance for Ambiguity	Need for Cognition
SJT-1	n.s.	0.216*
SJT-2	0.281**	0.229**
SJT-4	n.s.	0.227*
SJT-6	0.217*	n.s.
SJT-8	n.s.	0.228*
SJT-12	0.230*	n.s.
SJT-13	n.s.	0.266*

*Significant at alpha level of 0.05.

**Significant at alpha level of 0.01.

Moral Judgment dimensions relevant to d

	Altruism-Egoism	Utilitarianism-Deontology
SJT-6	0.215*	0.214*
SJT-9	0.261*	n.s.
SJT-14	0.210*	n.s.

*Significant at alpha level of 0.05.

- Dimensions that correlated with more SJT scenarios tended to be the “softer” dimensions like personal qualities and altruism-egoism.

- Abilities related to decision making and utilitarian-deontological judgments may be more “concrete,” and are less amenable to being captured in SJTs.

- Sample comprised mostly undergraduates (72% had less than 3 years working experience).

- The results might be useful for determining position placement for ARL recruiting and more specifically for identifying those best suited for Human-Robot Teaming.

- Include incumbent executives and managers, and retired officers in sample – compare results obtained.

- Examine different format of SJTs (i.e. video-based SJTS).

- Develop and test new approach for selecting and improving personnel for decision making skill.

Gain objective reporting of candidates

EEG, ECG, TCD, fNIR, eye tracker, and task performance
measure core elements of decision-making

Higher Purpose
Integrity
Collaboration
Altruism
Ambition
Pragmatism
Emotional Intelligence

Pattern Recognition
Speed
Presence & Absence
Stress
Accuracy
Attention
Discipline

Discerns accuracy of info
Best questions to ask
Importance
Identification
Simplification Ability
Creativity
Listening Recall
Enroll Others

Moral Reasoning
Index vs. Norm
Ex. John: 109 index

Time Pressure
Index vs. Norm
Ex. John: 121 index

Complex Judgment
Index vs. Norm
Ex. John: 95 index

Modeled Relationship to Skill Level of Decision-Making

Decision Skill Index (DSI)
Ex. John DSI = 108 index

Questions

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Extras

Instructions: *Please read the scenario and select the most effective response from the options that follow.*

You have recently joined a new organization and you have started managing a small team of people. In the past, the team has had difficulty with their overall performance. You are aware that the individuals need to have clarity about what is expected of them in their roles. However, you anticipate there may be some resistance when you outline what needs to be improved.

1. Be open with the team about the required improvements and hold frequent meetings so the team can update you on any problems that may affect their performance.

2. Regularly review the team's performance to monitor their progress and provide feedback when necessary.

3. Clearly explain to the team what is expected of them and hold back from having open discussions to avoid any challenges about this.

*Sample SJT from Saville & Holsworth Ltd., http://www.shlquestionnaires.com/2500/